

AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes changes to FIG. 2. This sheet replaces the original sheet of FIG. 2.

REMARKS/ARGUMENTS

Claims 1-13 are currently pending. Claims 1-5, 8, 9 and 13 have been amended.

Claims 6-7 and 10-12 have been canceled. Claims 14-17 have been added.

Specification Objections

The objection to the specification was based on several informalities. The specification has been amended in a manner consistent with the Examiner's suggestions to address the subject informalities. Withdrawal of the specification objection is thus respectfully requested.

Drawing Objections

The objection to the drawings was based on a reference number error. A replacement drawing sheet for FIG. 2 is enclosed which addresses the subject reference number error. Withdrawal of the drawing objection is thus respectfully requested.

Rejection under 35 U.S.C. §112

Claims 2, 4, 5 and 8-11 were rejected under 35 U.S.C. §112 as being indefinite. Claims 2, 4, 5, 8 and 9 have been amended to more clearly recite the invention. Claims 10 and 11 have been cancelled without prejudice. Withdrawal of the §112 rejection is thus respectfully requested.

Information Disclosure Statement

Copies of the foreign patent documents originally cited and attached to Applicant's September 22, 2005 Information Disclosure Statement are being re-submitted and enclosed with the present response.

Rejection under 35 U.S.C. §102 and §103

Claims 1, 3-5 and 11-12 were rejected under 35 U.S.C. §102(b) as being unpatentable over U.S. Patent No. 5,929,721 to Munn et al.

Claims 2, 8 and 9 were rejected under 35 U.S.C. §103(a) as being unpatentable over Munn et al. in view of U.S. Patent No. 6,828,883 to Kitajima et al.

Claims 6 and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Munn et al. in view of U.S. Patent Publication No. 2003/0201848 to Bloom et al.

Independent Claim 1

Amended claim 1 recites a filter comprising, among other elements, a trap resonator formed by at least one of the plurality of through-holes which extend through the block between the top and bottom surfaces and is located in the central portion between the first and the second antenna coupling areas.

The references of record do not teach, disclose or suggest the use of a trap resonator formed by one of the plurality of through-holes extending between the top and bottom surfaces.

Munn et al. discloses only a filter with a trap hole 419 (FIGS. 4 and 5 of Munn et al.) that extends between side surfaces in an orientation generally perpendicular to the

resonator holes which extend between the top and bottom surfaces. In Kitajima et al., there are no resonators between the two coupling areas defined by the antenna pad. Bloom et al. discloses a filter with only one antenna coupling area.

Claim 1 has been further amended to recite that a decoupler, formed by at least a second one of the plurality of through-holes extending between the top and bottom surfaces, is also located in the central portion of the block and, further, that the trap resonator is located between the decoupler and one of the first and second antenna coupling areas.

These amendments do not introduce any new matter and are supported in, for example, page 7, lines 7-19 of the specification and FIG. 1 which shows decoupler 47 and trap resonators 31D and 31E all located between the two antenna coupling areas 35 and 36 on the top surface 14.

In accordance with the present invention, the decoupler 47 is positioned between the through-holes 30D and 30E to advantageously reduce inductive and other electromagnetic coupling between the resonators 31D and 31E. Moreover, the placement of trap resonators 31D and 31E outside the frequency passband of interest creates additional zeros which offer greater design flexibility and latitude.

None of the references of record disclose or suggest a monoblock with more than one through-hole located between first and second antenna coupling areas on the top surface of the filter. Thus, claim 1 is allowable as presently amended.

Dependent claim 2 depends from independent claim 1 as presently amended and adds additional patentable features and is allowable therewith.

Independent Claim 3

Amended claim 3 recites a filter comprising, among other elements, a plurality of coupled resonators extending between a first set of paired opposed sides and a decoupler located in the central portion of the dielectric block and extending between the first set of paired opposed sides. In accordance with claim 3, the decoupler is located between the first and second antenna coupling electrodes and a metallization extension extends between the decoupler and the expansive metallized area on the block.

These amendments likewise do not add any new matter and are supported on page 7, lines 7-14 of the specification and FIG. 1 which shows decoupler 47 and metallization extension 62 on the top surface 14 extending between the decoupler 47 and metallization area 42.

None of the references of record teach, disclose or suggest the use of a decoupler in the antenna region of the block with a metallization extension which couples the decoupler to another metallized area on the block. Claim 3, as amended, is thus allowable over the art of record.

Independent Claim 4

Amended claim 4 recites a filter comprising, among other elements, a core comprising first, second, third, and fourth input-output coupling metallized areas extending between the top surface and one of the sides of the core wherein: the first and second metallized areas define the antenna coupling areas; a third input-output coupling area is positioned between the first input-output coupling area and the first

end; and the fourth input-output coupling area is positioned between the second input-output coupling area and the second end. The core and the metallized areas together define at least one trap resonator positioned between the first input-output coupling area and the second input-output coupling area.

These amendments likewise do not introduce any new matter and are supported in, for example, FIG. 1 which shows first and second input-output antenna coupling areas 35 and 36 and third and fourth input-output coupling areas 34 and 37.

None of the references of record teach, disclose or suggest a filter with four input-output coupling areas as recited in claim 4.

Munn et al. discloses a block with only one input-output pad extending between the top surface and one of the sides of the core, i.e., an antenna pad. The end input-output pads are located only on the side and do not extend over the top surface. In Kitajima et al., there is no resonator located between the two antenna input-output areas. Bloom et al. discloses only one antenna input-output coupling area as opposed to respective first and second antenna coupling areas as in claim 4.

Thus, claim 4 as amended is allowable over the art of record.

Independent Claim 5

Claim 7 was indicated as being allowable if re-written in independent form.

Claim 5 has been amended to include the limitations of claims 6 and 7.

Dependent claims 8 and 9 depend from independent claim 5 and add additional patentable features and are allowable therewith.

Dependent Claims 10-12

Dependent claims 10-12 have been cancelled without prejudice.

Independent Claim 13

Amended claim 13 recites a filter where a decoupler is positioned between the first and the second antenna coupling metallized areas and is formed by a second through-hole extending between the top and bottom surfaces of the filter. Amended claim 13 additionally recites that a first trap resonator is positioned between one of the first and the second antenna coupling metallized areas in the central portion and the decoupler and that the first trap resonator is formed by a third through-hole also extending between the top and bottom surfaces of the filter.

As discussed above with respect to claim 1, none of the references of record teach, disclose or suggest the combination of a decoupler formed by a metallized through-hole extending between the filter top and bottom surfaces and a trap resonator formed by another metallized through-hole also extending between the filter top and bottom surfaces, where both the trap resonator and the decoupler are positioned between first and second antenna coupling metallized areas defined on the filter top surface.

The trap resonator disclosed in Munn et al. extends between opposed side surfaces of the filter (not opposed top and bottom surfaces) in an orientation transverse to the other resonator holes extending between the top and bottom surfaces. In the present invention as recited in claim 13, all of the resonator holes extend between the top and bottom surfaces of the filter. Munn et al. also fails to disclose or suggest the

recited decoupler. In Kitajima et al., there are no resonators located between the two antenna coupling areas. Bloom et al. discloses only one antenna coupling area.

Newly added dependent claims 14-17, being dependent upon independent claim 13 as presently amended, are allowable for the same reasons as independent claim 13.

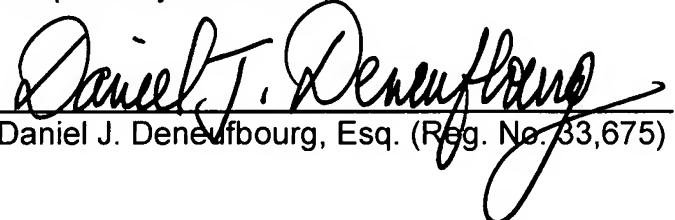
As it relates to the subject of dependent claim 17, and as discussed above with respect to claim 3, none of the references of record disclose or suggest the metallization pattern extension which extends between the decoupler and the metallization pattern.

Conclusion

The present amendments and the accompanying discussion are believed to dispose of all issues in this case and to place this application in condition for allowance. Entry of the amendments and passing of this application to issue is respectfully requested.

The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment to Deposit Account No. 03-1677.

Respectfully submitted,


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